

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 23-34 are presently pending in this case. Claims 23 and 27 are amended by the present amendment. As amended Claims 23 and 27 are supported by the original disclosure,¹ no new matter is added.

In the outstanding Official Action, Claims 23-25, 27-29, and 31-33 were rejected under 35 U.S.C. §103(a) as unpatentable over Li (U.S. Patent No. 6,654,429) in view of Khayrallah et al. (U.S. Patent No. 6,047,171, hereinafter "Khayrallah"); and Claims 26, 30, 32, and 34 were rejected under 35 U.S.C. §103(a) as unpatentable over Li in view of Khayrallah and further in view of Mitra et al. (U.S. Patent No. 5,533,063, hereinafter "Mitra").

With regard to the rejection of Claim 23 as unpatentable over Li in view of Khayrallah, that rejection is respectfully traversed.

Amended Claim 23 recites in part:

a channel estimator configured to perform a channel estimation on the basis of received pilot symbols; and
a filter configured to perform a channel estimation for data symbols between pilot symbols, said filter being adaptively selected from a set of filters on the basis of an interference reference value, since channel estimation being based on an estimated carrier to interference value ratio, said estimated carrier being a wanted carrier power value at a frequency subcarrier and a timeslot of a data symbol to be channel estimated, and said interference value is an interference reference value.

Li describes a channel estimator in an OFDM system, in which pilot symbols are inserted at known positions in the time-frequency space. The received signal is subjected to a two-dimensional inverse Fourier transform, two-dimensional filtering, and a two-dimensional

¹See, e.g., the specification at page 4, lines 1-19 and page 5, lines 32-35.

Fourier transform to recover the pilot symbols so as to estimate the channel response.² The outstanding Office Action asserted that since pilot symbols are inserted into each data packet, which comprises data symbols, Li teaches channel estimation for data symbols between pilot symbols.³ However, it is respectfully submitted that Li discloses that the received signal is created at the transmitter by inserting pilot signals into data packets at known positions, as noted above.

In contrast, Claims 23 and 27 explicitly recite that the channel estimation is for “data symbols between pilot symbols” and not for “pilot symbols in data packets” as Li describes. Further, Claims 23 and 27 explicitly recite that the channel estimation is performed by a filter, the channel estimation being based on an estimated carrier to interference value ratio. This is very different than the description in Li on which the outstanding Office Action relies, which explicitly describes that channel response is estimated based on the received signal that is described as data packets with pilot symbols inserted in them at known positions, so as to occupy predetermined positions in the time-frequency space. In Li, the estimation of channel response is performed by the receiver that comprises a channel estimator that in turn may comprise a plurality of elements such as a multiplier, local pilot symbol memory, switch preferably implemented in software, delay and formatting device, and 2D IFFT unit. Therefore, it is respectfully submitted that Li does not teach or suggest “channel estimation for data symbols between pilot symbols.”

With regard to the claimed filter, the outstanding Office Action concedes that Li does not teach or suggest “said filter being selected from a set of filters based on the estimated carrier to interference ratio” and relies further of the disclosure of Khayrallah as describing this feature.⁴

²See Li, abstract.

³See the outstanding Office Action at page 2, lines 5-12.

⁴See the outstanding Office Action at page 3, lines 15-18.

Khayrallah describes at column 7, lines 9-31, that a filter is selected based on a “value of carrier to adjacent channel interference ratio C/A.” In contrast, the filter of the claimed invention, as recited by Claims 23 and 27 is “adaptively selected from a set of filters on the basis of *an interference reference value*.” Therefore, it is respectfully submitted that Khayrallah does not teach or suggest “a filter” as defined in amended Claim 23. Consequently, Claim 23 (and Claims 24-26, 33, and 34 dependent therefrom) is patentable over Li in view of Khayrallah.

Amended Claim 27 recites in part:

performing, by a filter, a channel estimation for data symbols between pilot symbols, said filter being adaptively selected from a set of filters on the basis of an interference reference value, said channel estimation being based on an estimated carrier to interference value ratio, the estimated carrier being a wanted carrier power value at a frequency subcarrier and a timeslot of a data symbol to be channel estimated, and said interference value is an interference reference value.

As noted above, Claim 27 explicitly recites performing channel estimation for “data symbols between pilot symbols” and not for “pilot symbols in data packets” as Li describes. Thus, it is respectfully submitted that Li does not teach or suggest “performing, by a filter, a channel estimation *for data symbols between pilot symbols*” as recited in Claim 27. Further, as Khayrallah only describes that a filter is selected based on a “value of carrier to adjacent channel interference ratio C/A,” it is respectfully submitted Khayrallah does not teach or suggest this feature either. Consequently, Claim 27 (and Claims 28-32 dependent therefrom) is also patentable over Li in view of Khayrallah.

With regard to the rejection of Claims 26, 30, 32, and 34 as unpatentable over Li in view of Khayrallah and further in view of Mitra, it is noted that Claims 26, 30, 32, and 34 are dependent from Claims 23 and 27, and thus are believed to be patentable for at least the reasons discussed above. Further, it is respectfully submitted that Mitra does not cure any of

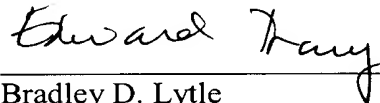
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the above-noted deficiencies of Li and Khayrallah. Accordingly, it is respectfully submitted that Claims 26, 30, 32, and 34 are patentable over Li in view of Khayrallah and further in view of Mitra.

Accordingly, the pending claims are believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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